REMARKS/ARGUMENTS

Claims 1-3, 12, and 16 have been amended, and claims 17-20 have been newly added. Claims 14 and 15 are canceled. Claims 1-12 and 16-20 are now pending in the application. (Claim 13 was previously canceled.) Applicant respectfully requests reexamination and reconsideration of the application.

Initially, Applicant notes that an Information Disclosure Statement was mailed on January 23, 2004, listing fifteen references. The PAIR system indicates that the Information Disclosure Statement was received at the PTO on January 26, 2004. Applicant requests that the listed prior art be considered and the list of references be initialed and returned to Applicant.

Claims 14 and 15 were rejected under 35 USC §112, first paragraph. Claims 14 and 15 have been canceled without prejudice, mooting this rejection.

Claims 1-7, 10, 11, and 16 were rejected under 35 USC §102(b) as anticipated by US Patent No. 4,983,804 to Chan et al. ("Chan") or, in the alternative, under 35 USC §103 as obvious in view of Chan and US Patent No. 6,150,186 to Chen et al. ("Chen"). Claims 8 and 9 were rejected under §103 as obvious in view of Chan or Chan combined with Chen. Claim 12 was rejected under §103 as obvious in view of Chan, Chen, and US Patent No. 5,340,537 to Barrett ("Barrett"), and claims 14 and 15 were rejected under §103 as obvious in view of Chan, Chen, and US Patent No. 5,476,211 to Khandros ("Khandros"). Applicant respectfully traverses these rejections.

Independent claim 1 is directed to a method of selectively heat treating conductive interconnect structures while minimizing the heating of anything other than the interconnect structures. As described in claim 1, each interconnect structure is attached to a terminal of a contactor, and each interconnect structure includes a contact tip that is disposed away from the contactor. Dependent claim 19 further describes the interconnect structures as "springs." Figure 10C illustrates a nonlimiting example of an interconnect structure. As shown in Figure 10C, exemplary interconnect structure 1050 is attached to terminal 1040 on substrate 1030, and a contact portion 1056 of the interconnect structure 1050 is disposed above substrate 1030. A nonlimiting exemplary use of a substrate with a plurality of such interconnect structures is making temporary connections with the dies on a semiconductor wafer in order to test the dies.

The method recited in claim 1 heats the interconnect structures without substantially heating other parts of the contactor. It does so by using an oscillating electromagnetic field to

induce heat directly in the interconnect structures themselves. The method of claim 1 does not heat the interconnect structures by the conduction of heat from a separate heating element to the interconnect structures. Because the electromagnetic fields induce heat directly in the interconnect structures themselves, the heating is substantially limited to the interconnect structures. One advantage is that heat damage to other parts of the contactor is avoided.

Neither Chan nor Chen disclose using electromagnetic fields to heat directly interconnect structures like the structures described n claim 1.

Chan is directed to heating solder to melt the solder and thereby connect electrical components. Chan does not, however, teach using electromagnetic fields to induce heat directly in the solder. As shown in Figure 2 of Chan, electromagnetic fields generated by coils 23 and 24 induce heat in a ferromagnetic sheet 19. Heat is then transferred by conduction from the sheet 19 to the solder 17. In Figure 4 of Chan, the electromagnetic fields induce heat in ferromagnetic balls 30, 31 that are embedded in the solder 32, 33. Again, heat is then transferred by conduction from the balls 30, 31 to the solder 32, 33. Thus, even if solder were to be considered an interconnect structure, Chan does not teach using an electromagnetic field to induce heat directly in the solder. Rather, Chan teaches inducing heat directly in sheet 19 or balls 30, 31 and then heating the solder by the conduction of heat from the sheet 19 or balls 30, 31 to the solder. A disadvantage to Chan's method, however, is that sheet 19 or balls 30, 31 may also conduct heat to other parts of the apparatus. Thus, Chan is unlikely to be as effective as claim 1 of the instant invention in heating only the interconnect structures while minimizing heating of other parts of the apparatus. Therefore, claim 1 of the instant application represents an improvement over Chan.

Chen does not make up for the above-described deficiencies in Chan. Chen teaches coating a structure with specially selected materials in order to reduce the amount of heat needed to heat treat the structure. (E.g., Chen column 3, lines 36-40.) Chen does not teach selectively heating only particular structures much less doing so with electromagnetic fields.

Barrett and Khandros were not relied on in the Office Action for any teaching regarding heat treatment. Therefore, both Barrett and Khandros also fail to make up for the above-described deficiencies in Chan.

As none of Chan, Chen, Barrett, or Khandros teaches heating an interconnect structure (described in claim as attached to a terminal of a substrate and having a contact tip disposed

away from the substrate) directly with an electromagnetic field, independent claim 1 patentably distinguishes over those four references, whether taken singly or in combination.

Claims 2-12 and 16-20 depend from claim 1 and therefore also distinguish over Chan, Chen, Barrett, and Khandros.

In view of the foregoing, Applicant submits that all of the claims are allowable and the application is in condition for allowance. If the Examiner believes that a discussion with Applicant's attorney would be helpful, the Examiner is invited to contact the undersigned at (801) 536-6763.

Respectfully submitted,

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